

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

Griffith Hack
GPO Box 4164
SYDNEY NSW 2001

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) 17 SEP 2004

Applicant's or agent's file reference
FP19907

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/AU2004/000830

International filing date (day/month/year)
24 June 2004

Priority date (day/month/year)
26 June 2003

International Patent Classification (IPC) or both national classification and IPC
Int. Cl. ⁷ H04L 9/20, H04B 1/69

Applicant

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the IPEA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
E-mail address: pct@ipaaustralia.gov.au
Facsimile No. (02) 6285 3929

Authorized Officer
MANI RAMACHANDRAN
Telephone No. (02) 6283 2233

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/AU2004/000830

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/AU2004/000830

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	YES
	Claims 1-26	NO
Inventive step (IS)	Claims	YES
	Claims 1-26	NO
Industrial applicability (IA)	Claims 1-26	YES
	Claims	NO

2. Citations and explanations:

NOVELTY & INVENTIVE STEP Claims 1-26:

The following documents identified in the International Search Report have been considered for the purposes of this opinion:

D1 – US 5793798 A (RUDISH et al) 11 August 1998

D2 – US 5822363 A (Le ROY) 13 October 1998

D3 – DE 3129912 A1 (SIEMENS AG) 10 March 1983

The subject matter of the broad, independent device claims 1, 7 and method claims 13 and 19 are disclosed in D1. This citation deals with a virtual beam, which applies to radar and other wireless communication systems, talks about transmitting and receiving sub-units which employ an encoder and a decoder, respectively. The element position encoder includes means for pseudo-randomly phase shifting each one of the plurality of constituent signals, the pseudo-random phase shifting means imparting a pseudo-random phase shift on each one of a plurality of constituent signals. That the invention is applicable to direct sequence spread spectrum signals is mentioned in the background of the invention in column 1.

In a variation of the invention in the citation, the element position encoding means includes time offsetting means that cause each one of the plurality of constituent signals to be respectively radiated by one of the plurality of transmitting elements at a plurality of different times. The plurality of different times are pseudo-randomly spaced with respect to one another.

In another form of the cited invention, the pseudo-random phase shift associated with the pseudo-random phase shifting means is provided by a time stationary pseudo-random phase code. Alternatively, in still a further variation, the pseudo-random phase shift is provided by a time varying pseudo-random phase code.

As far as the decoding aspects are concerned, a divider provided in the receiving sub-unit divides the received signal into multiple composite signal portions. The signal decoder removes the imparted pseudo-random phase shift.

D2 is yet another relevant citation which talks about differential coding of binary signals using orthogonal pseudo-random sequences and delay circuits, and decoding by parallel filtering to estimate the phase difference between the signals.

D3 is another good citation for the encoder, which discloses HF transmission using pseudo random phase shift modulation using spectrum spreading at the transmission end. The signal is passed to an encoder and the spreader which is also connected to a code generator. The output of the spreader is connected to the phase shifter which is connected by an HF output stage to the transmitting aerial.

Clearly, in the light of the above citations, there can be no novelty or an inventive step in the invention defined in claims 1-26, including software and a computer medium that could perform it.